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LearnEveryWare

Math 6 Unit 4

Workbook

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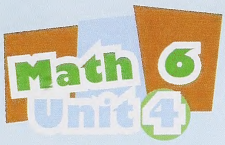

Math 6 Learn EveryWare – Unit 4 Workbook
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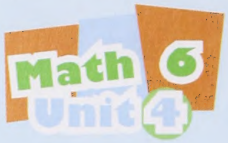

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Math 6 Unit 4

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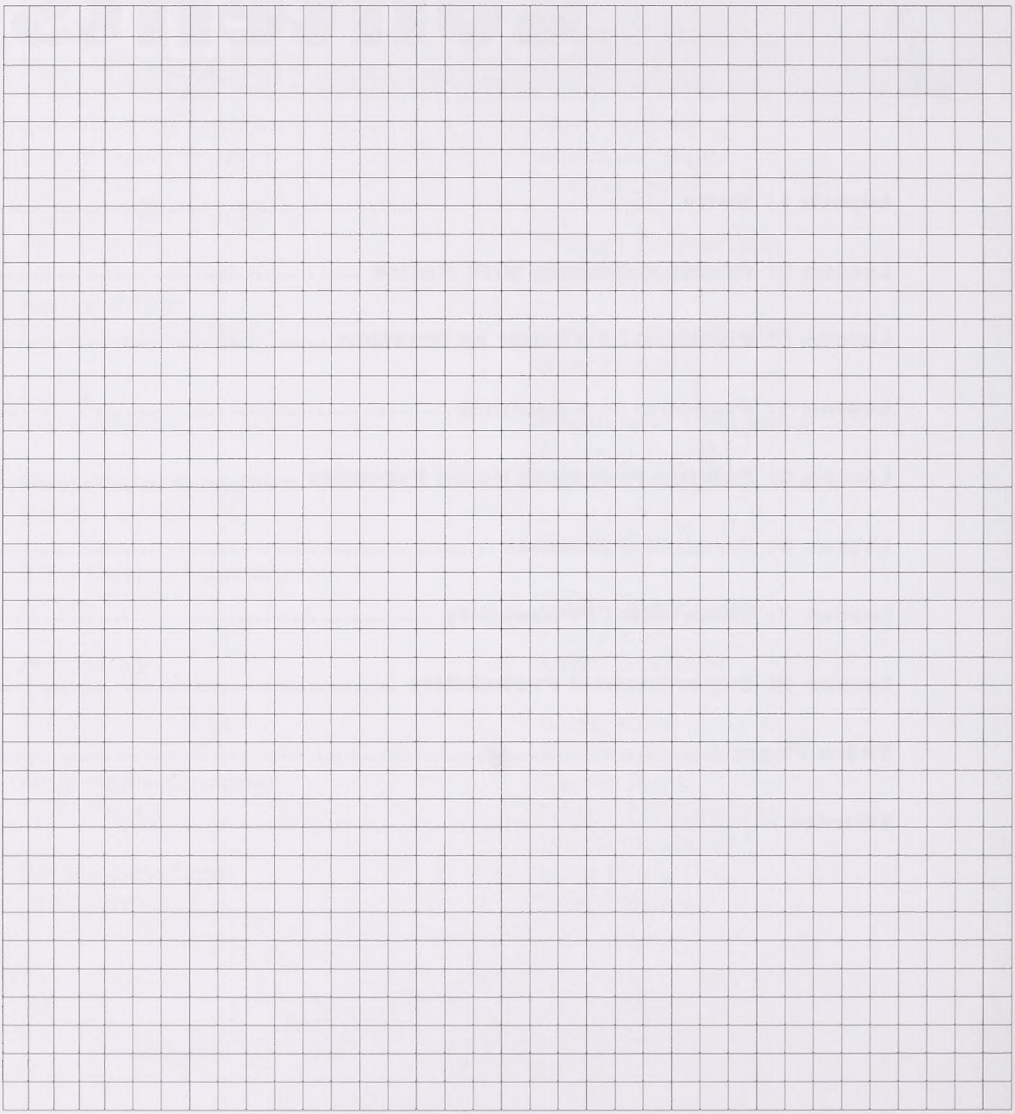


Lesson 1

Ratio

Exploration 1: Ratio Bingo

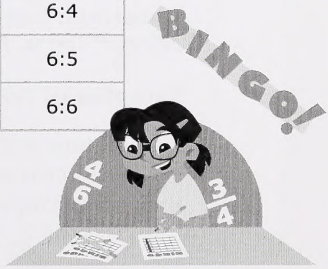
Number of players: 2 to 4

Materials: Blank Bingo Card from the back of this Unit in your Workbook, Pencil, Dice, Pennies or Counters

Play:

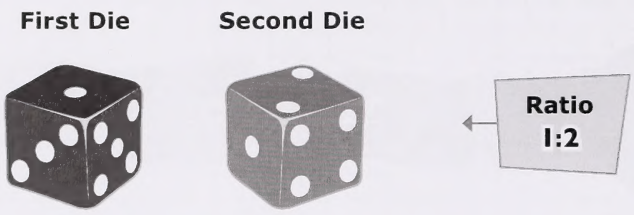
1. Have each player choose 24 ratios from the given list and fill in their Bingo card.

List of Ratios					
1:1	2:1	3:1	4:1	5:1	6:1
1:2	2:2	3:2	4:2	5:2	6:2
1:3	2:3	3:3	4:3	5:3	6:3
1:4	2:4	3:4	4:4	5:4	6:4
1:5	2:5	3:5	4:5	5:5	6:5
1:6	2:6	3:6	4:6	5:6	6:6



2. On a player's turn he or she rolls the dice one at a time. The ratio is the number on the first die to the number on the second die.

   Example:



3. The ratio rolled is marked on all players' cards, using a penny or counter, if it appears.
4. Pass the dice to the next player and repeat the process.
5. The first player to get a Bingo wins.

Exploration 2: Making Ratios

Materials: Unit 4, Lesson 1, Exploration 2 page in your Workbook, Two Sets of 12 Different Items, Pencil

Samples of two sets of 12 different items:

- 12 buttons and 12 beans
- 12 paperclips and 12 blocks
- 12 pencil crayons and 12 small squares of paper

For 1 – 4: Create a model on your desk of each ratio using your two sets of different items. Draw your model, and list the ratio in words.

1. **3:5** _____ to _____

2. **2:4** _____ to _____

3. **5:3** _____ to _____

4. **4:2** _____ to _____

For 5 – 7: Create 3 models of ratios using your two sets of different items. Draw your models. Write the ratio you created in words and in ratio form.

5. **Ratio:** _____

   Words: _____ to _____

6. **Ratio:** _____

   Words: _____ to _____

7. **Ratio:** _____

   Words: _____ to _____

For 8 – 12: Either record an oral answer or write one in the space provided. If recording, follow the recording instructions found at the end of this Exploration.

8. How is your model of number 2 like the model of number 4?

9. How are the ratios of numbers 2 and 4 different?

10. How is your model of number 1 like the model of number 3?

11. How are the ratios of numbers 1 and 3 different?

12. Reflect: Is order important when dealing with a ratio? Why or why not?

Recording Instructions:

Start your recording by saying: My name is _____.

This is Math 6, Unit 4, Lesson 1, Exploration 2.

Be sure to hand in your recording with your Workbook.

Let's Practice

For 1 – 8: Use the models shown. Write the ratios in three different ways.

1. stars to triangles

2. circles to stars

3. triangles to circles

4. circles to diamonds

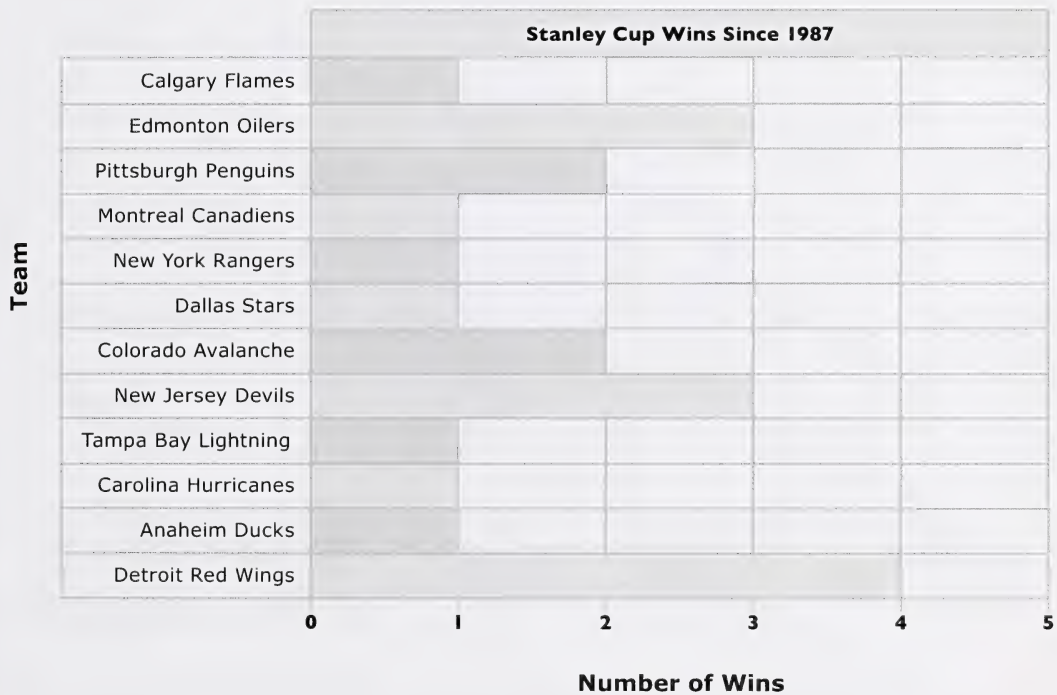
5. diamonds to stars

6. diamonds to triangles

7. stars to all figures

8. circles to not circles

For 9 – 14: Use the graph. Write the ratios in three different ways



9. Calgary wins to Edmonton wins

10. Colorado wins to Montreal wins

11. Dallas wins to New Jersey wins

12. Edmonton wins to Detroit wins

13. New York wins to Montreal wins

14. Calgary wins to Pittsburgh wins

15. A rectangle has a length of 12 cm and a width of 10 cm. Write the ratio of length to width.

16. A rectangular prism has a length of 8 cm, a width of 5 cm and a height of 7 cm. What is the ratio of length to height?

17. Daksha asked 20 people what pets they had. He found that 8 people had cats and 12 people had dogs. What is the ratio of dog owners to cat owners?

18. Nina has a dollar's worth of quarters and a dollar's worth of dimes. What is the ratio of quarters to dimes?

For 19 – 21: Shade the correct number of figures to make the ratio true.

19. five shaded stars to six white stars

20. three shaded circles to four white circles

21. four shaded trapezoids to four white trapezoids

22. Reflect: How is a ratio like a fraction? How is it different?

Mixed Review

For 1 – 5: Write an improper fraction and a mixed number for each shaded region.

1.

2.

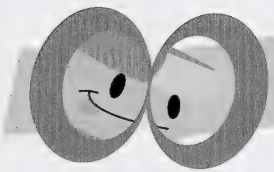
3.

4.

5.

Lesson 2

Problem Solving with Ratios

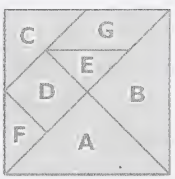


Let's Explore

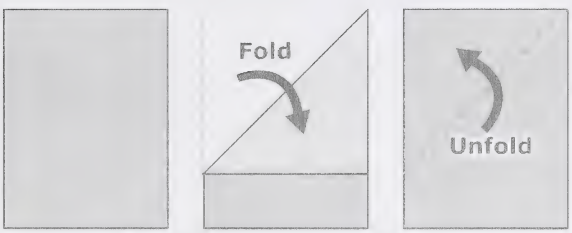
Exploration 1: Creating Tangrams

Materials: A Rectangular Piece of Paper, Scissors, Straight Edge (optional)

Tangram

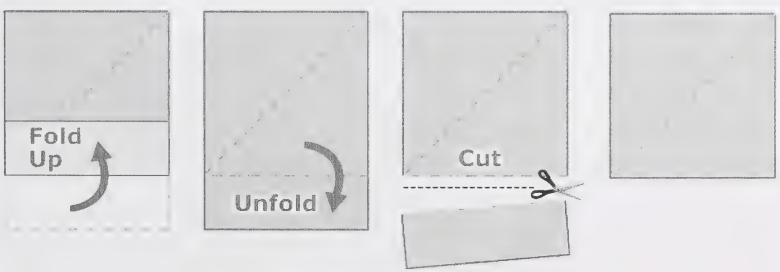


Tangrams are special manipulatives that have relationships among the size of the pieces. You can make your own set using these steps:

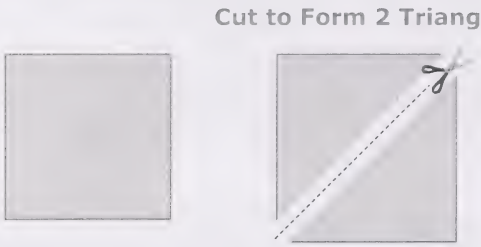


This is the large square.

All of the tangram pieces fit together like a puzzle to form this square.

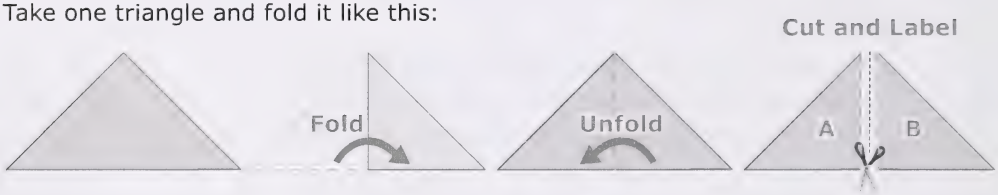


The square is equal in area to two large triangles.



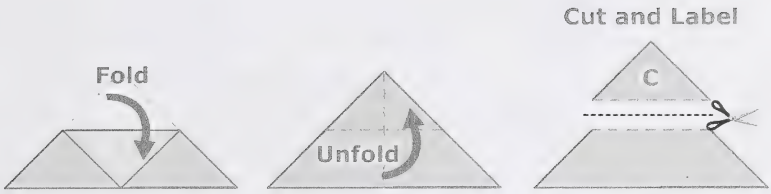
The ratio of the area of the large triangle to the area of the large square is **2:1**.

Take one triangle and fold it like this:



Now you have two small triangles. The area of one of these small triangles to the area of the large square is **4:1**.

Take the other large triangle and fold it like this:

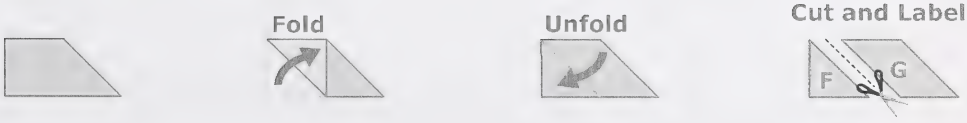


The ratio of this triangle to Triangle A is **2:1**.

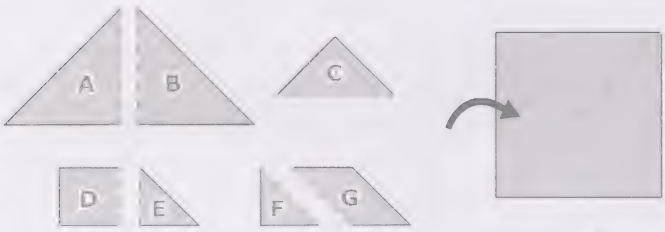
Take the trapezoid from the last step fold it in half and then cut along the fold:

Take one of the small trapezoids:

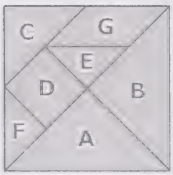
Take the other small trapezoid:



Now you have all the pieces of the Tangram puzzle:



Tangram



This is the large square.

All of the tangram pieces fit together like a puzzle to form this square.

For 1 – 7: Use the Tangram pieces to write the ratios in ratio form and fraction form.

	Ratio of the areas of...	Ratio form	Fraction form
1.	the whole large square to **A**		
2.	the whole large square to **B**		
3.	the whole large square to **C**		
4.	the whole large square to **D**		
5.	the whole large square to **E**		
6.	the whole large square to **F**		
7.	the whole large square to **G**		

For 8: Either record an oral explanation or write one in the space provided. If recording, follow the recording instructions found at the end of this Exploration.

8. Reflect: Explain your reasoning for the ratio of the whole square to the area of G.

Recording Instructions:

Start your recording by saying: My name is _____.

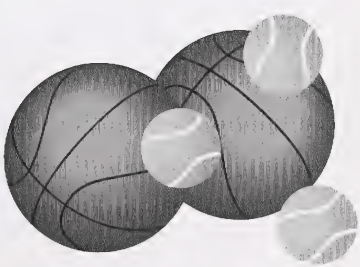
This is Math 6, Unit 4, Lesson 2, Exploration 1.

Be sure to hand in your recording with your Workbook.

Let's Practice

For 1 – 6: Students have the balls listed in the table available during recess. Write each ratio in word form, ratio form, and fraction form.

Ball	Number
Soccer	5
Tennis	12
Basketball	4
Volleyball	9

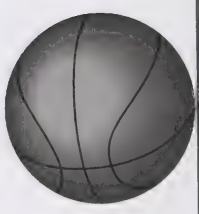


Lesson 2: Problem Solving with Ratios

1. What is the ratio of tennis balls to volleyballs?

2. What is the ratio of tennis balls to all balls available?

3. What is the ratio of soccer balls to tennis balls?



4. What is the ratio of basketballs to soccer balls?

5. What is the fraction of balls that are soccer balls?

6. Reflect: Which problems from 1 to 5 are part to part ratios?

For 7 – 10: The table shows the survey results for favourite school lunches. Write each ratio in word form, ratio form, and fraction form.

Favourite School Lunches	
Lunch	**Number**
Baked Chicken	18
Vegetable Soup	12
Turkey	14
Spaghetti	17
Chicken Strips	19

7. What is the ratio of students who prefer chicken strips to students who prefer baked chicken?

8. What is the ratio of students who prefer spaghetti to all students surveyed?

9. What is the ratio of students who prefer vegetable soup to all students surveyed?

10. What is the ratio of students who prefer turkey to students who prefer chicken strips?

11. Reflect: Which problems from 7 – 10 are part to whole ratios?

For 12 – 15: Solve the problems using ratios.

12. Lian is helping to plant grass seeds on her uncle's farm, and will fertilize at the same time. The ratio of grass seed to fertilizer should be 1:40.
If Lian has 5 kilograms of grass seed, how much fertilizer should she use?

Kilograms of Seed	1				5
Kilograms of Fertilizer	40				

13. Daksha is helping his uncle at his ranch. His uncle says that the ratio of sheep to horses is 6 to 1. Daksha counts 12 horses. How many sheep does his uncle own?

Number of Sheep	6											
Number of Horses	1											12

14. At Valley View Middle School there are 32 teachers to 640 students. How many students are there for each teacher?

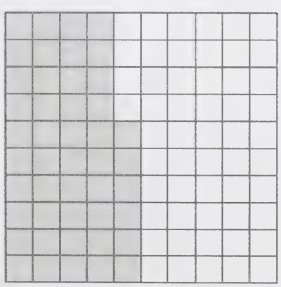
Number of Teachers	32					1
Number of Students	640					

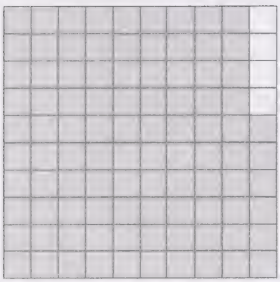
15. At the school picnic there were 324 children and 81 adults. How many children were there for each adult?

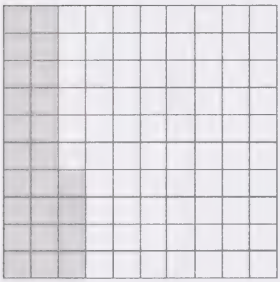
Number of Children	324				
Number of Adults	81				1

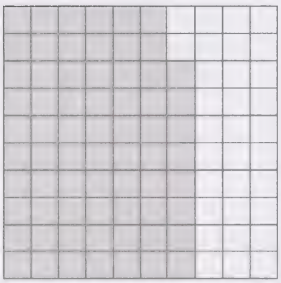
Mixed Review

For 1 – 5: Write the fraction that represents the shaded portion of the figure.

1. 

2. 

3. 

4. 

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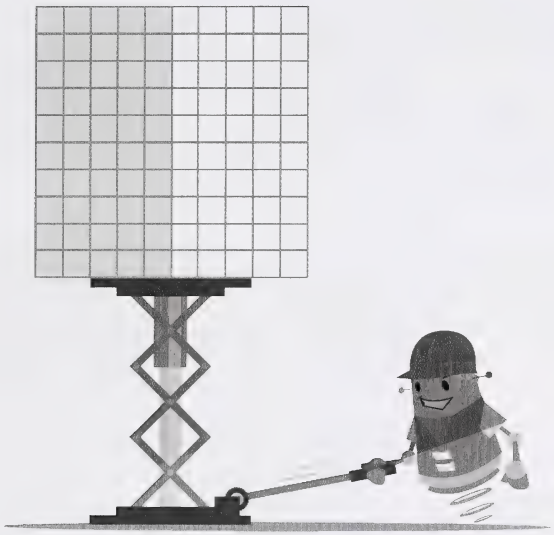
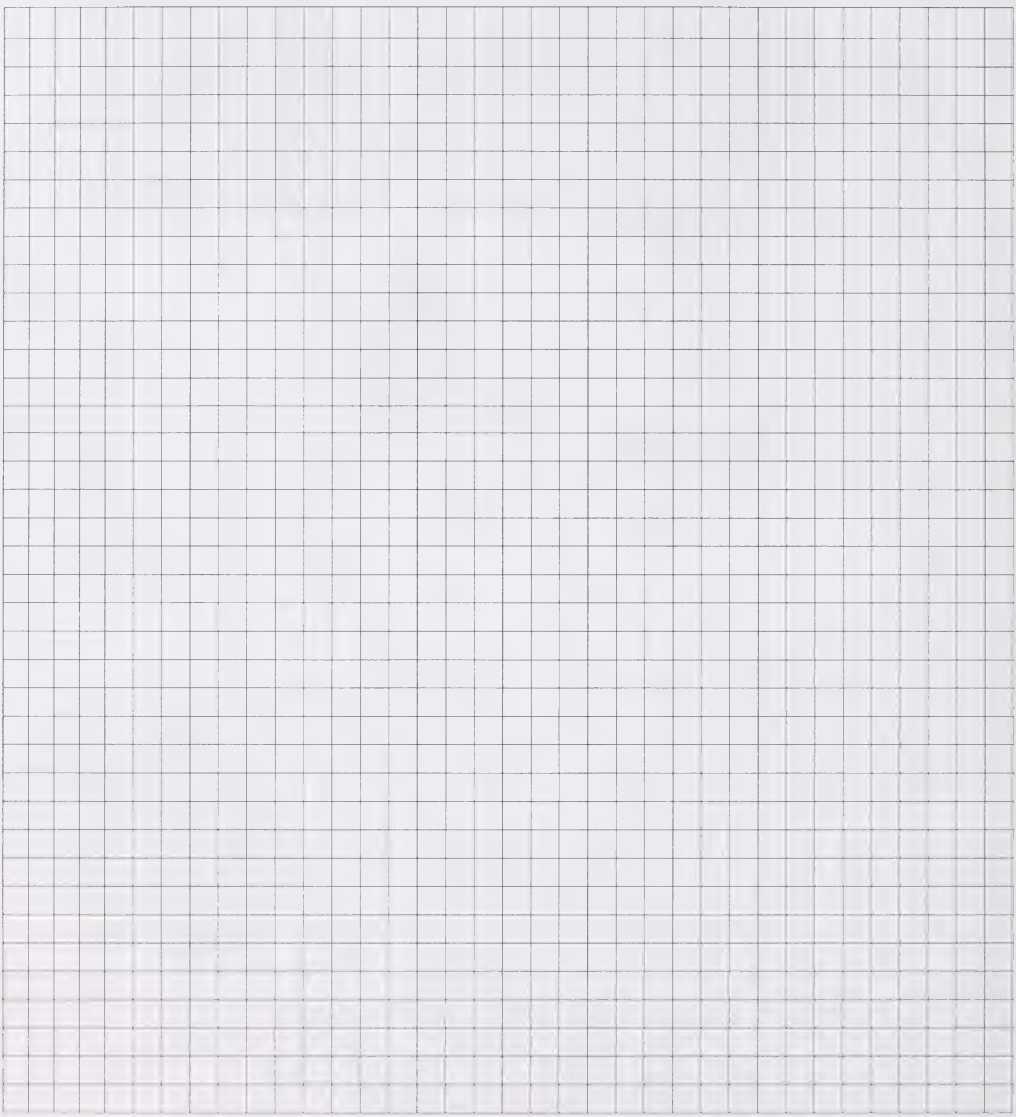
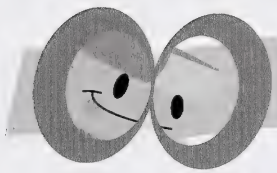




Lesson 3

Percents as a Ratio or Fraction



Let's Explore

Exploration 1: Making Parts of 100

Materials: Pencil or Pencil Crayons

1. Make a model for each of the following ratios:

   a. 40:100 b. 35 to 100 c. 18:100 d. 45:100

2. Make a model for each of the following fractions:

   a. $\frac{85}{100}$ b. $\frac{20}{100}$ c. $\frac{28}{100}$ d. $\frac{65}{100}$

3. Alyssa shaded 25 squares in a 10 by 10 square. What is a ratio for her shaded squares to the white squares?

4. Complete the statement: Alyssa shaded _____ parts of 100.

5. Daksha shaded 50 squares in a 10 by 10 square. What is a fraction for his shaded squares?

6. Complete the statement: Daksha shaded _____ parts of 100.

Exploration 2: Modelling Percents

Materials: Percent Strips, and Percent Circles from the back of this Unit in your Workbook, Scissors, Glue or Tape, Pencil

1. Label the following strips with the percentage that is shaded.

a. = _____ %

b. = _____ %

c. = _____ %

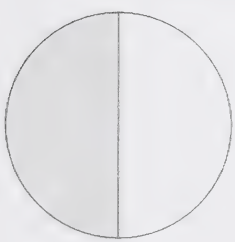
2. Cut out the Percent Strips.

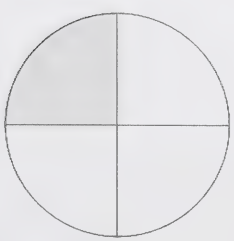
3. Using the Percent Strips, model the given percents. Paste your models in the strip provided. The strip represents 100%.

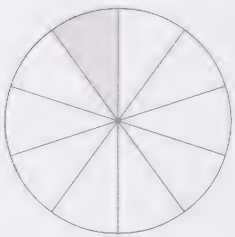
   a. Alyssa scored 85% on her last math test.

   b. Cameron's mother saved 20% on the school supplies she purchased.

4. Label the following circles with the percentage that is shaded.

   a.  =_____%

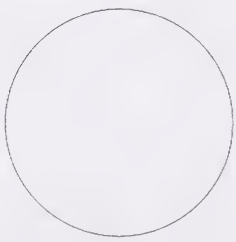
   b.  =_____%

c.  =_____%

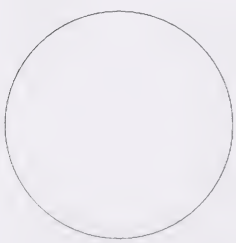
5. Cut out the Percent Circles.

6. Using the Percent Circles, model the given percents. Paste your models in the circle provided. The circle represents 100%.

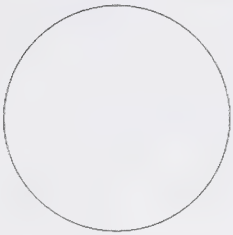
   a. Nina is able to get a goal 45% of the time she shoots the puck.



   b. Zach has earned 35% of his summer money.

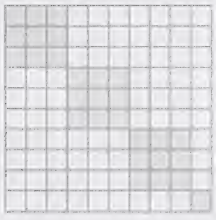


c. Lian planted 50% of the garden.



Let's Practice

For 1 – 3: Write the ratio, fraction, and percent of each square that is shaded.

1. 

ratio: _____

fraction: _____

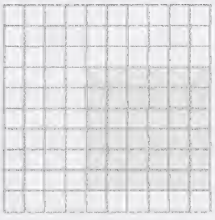
percent: _____

2.

ratio: _____

fraction: _____

percent: _____

3. 

ratio: _____

fraction: _____

percent: _____

For 4 – 6: Write each ratio as a percent.

4. 2:100
5. 27:100
6. 87:100

For 7 – 9: Write each fraction as a percent.

7. $\frac{54}{100}$
8. $\frac{35}{100}$
9. $\frac{98}{100}$

For 10 – 12: Write each percent as a ratio in word form.

10. 84%
11. 99%
12. 3%

For 13 – 15: Write each percent as a fraction.

13. 75%
14. 51%
15. 82%

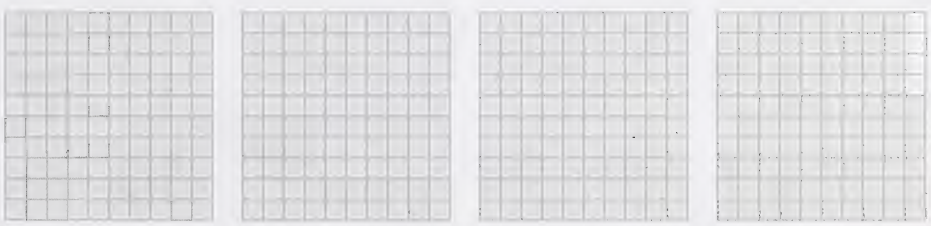
16. The results of a club election: Alyssa received 40% of the votes, Daksha received 35% of the votes, Cameron received the rest of the votes. What percent of the votes did Cameron receive? Use the 10 by 10 square to help you.

17. Reflect: If there were 240 votes for the election in number 16, what would be the "whole"? Do the percents add up to the whole? If not, what do they add up to?

Mixed Review

For 1 – 5: Write a decimal for the given model.

1.

2. 

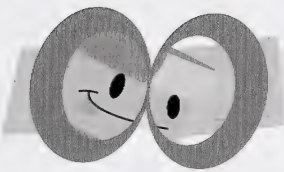
3.

4.

5.

Lesson 4

Percents as a Decimal



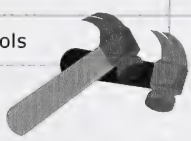
Let's Explore

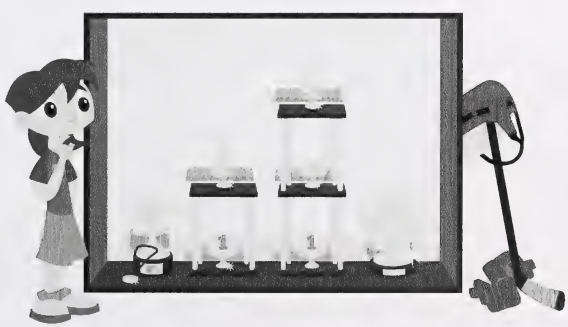
Exploration 1: Modelling Percents

Materials: Calculator, Pencil

For 1 – 6: Convert each part-whole combination into a decimal: part ÷ whole = decimal

		Part	Whole	Decimal
1.	Daksha's Video Games	12 Music	15 Total	
2.	Alyssa's Family's Trophies	5 Hockey	20 Total	
3.	Nina's Balls	12 Tennis	30 Total	
4.	Cameron's Books	8 Mystery	50 Total	
5.	Zach's Shirts	9 Navy	10 Total	
6.	Lian's Tools	2 Hammers	40 Total	





For 7 – 12: Write each decimal in the chart as a percent.

		Part	Whole	Decimal	Percent
7.	Daksha's Video Games	12 Music	15 Total		
8.	Alyssa's Family's Trophies	5 Hockey	20 Total		
9.	Nina's Balls	12 Tennis	30 Total		
10.	Cameron's Books	8 Mystery	50 Total		
11.	Zach's Shirts	9 Navy	10 Total		
12.	Lian's Tools	2 Hammers	40 Total		

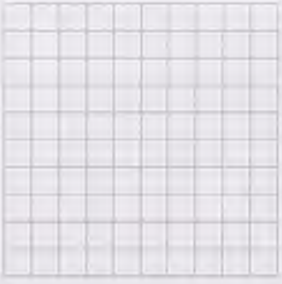
13. Create a model for each percent listed in the chart.

a. Daksha's Music Video Games

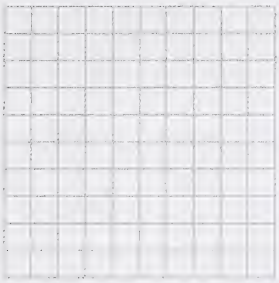
b. Alyssa's Family's Hockey Trophies

c. Nina's Tennis Balls

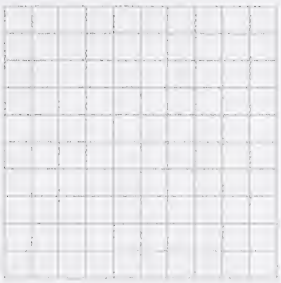
d. Cameron's Mystery Books



e. Zach's Navy Shirts



f. Lian's Hammers



Exploration 2: Comparing Parts

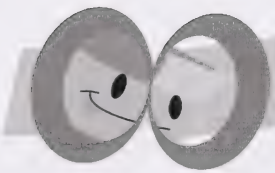
Materials: Pencil

1. Create three situations that involve percents. They can be from your every day life. Here are some ideas:

   - Give a survey
   - Track the use of something in your home
   - Record the wins and losses for a game you play with a family member or friend, etc.

2. Write the part and whole for each situation, as well as the decimal and percent.

Situation	Part	Whole	Decimal	Percent



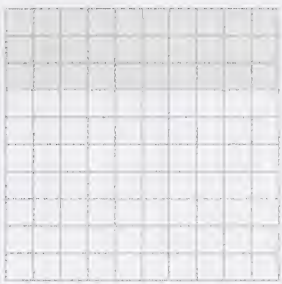
Let's Explore

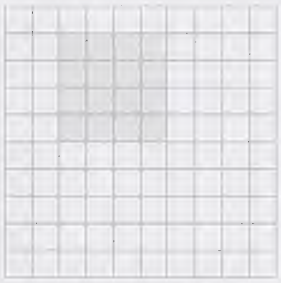
For 1 – 6: Write a decimal and a percent for each model.

1.

2.

3.

4. 

5. 

6.

For 7 – 12: Write a decimal for each percent.

7. 23%

8. 76%

9. 3%

10. 12%

11. 80%

12. 8%

For 13 – 18: Write a percent for each decimal.

13. 0.12

14. 0.7

15. 0.02

16. 0.65

17. 0.88

18. 0.3

For 19 – 20: Write a decimal and a percent for each phrase. Round to the nearest hundredth if necessary. Use a calculator.

19. 35 out of 60

20. 42 out of 50

21. Reflect: Describe the process of changing a part of a whole that is not 100 into a percent.

For 1 – 5: Divide.

1. $11.2 \div 2$

2. $34.8 \div 6$

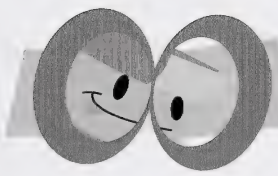
3. $0.24 \div 6$

4. $4.56 \div 8$

5. $43.4 \div 7$

Lesson 5

Solving Problems Using Percents



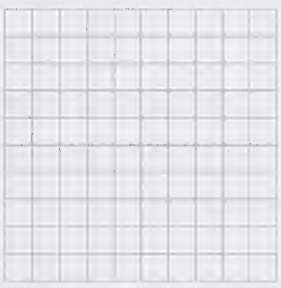
Let's Explore

Exploration 1: Percent of a Number

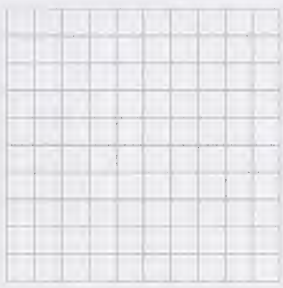
Materials: pencil

For 1 – 3: Graph the following percents on 10 by 10 squares.

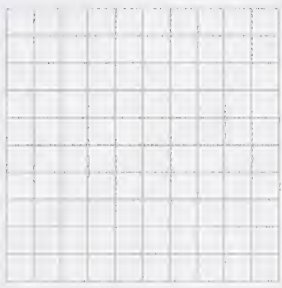
1. 30%



2. 25%



3. 75%



4. A 10 by 10 square represents 100 people. How many people does one unit of the square represent?

5. A 10 by 10 square represents 1 000 people. How many people does one unit of the square represent?

6. A 10 by 10 square represents 500 people. How many people does one unit square represent?

For 7: Either record an oral explanation or write one in the space provided. If recording, follow the recording instructions found at the end of this Exploration.

7. Reflect: Explain your answer to number 6.

8. Find the following using your 10 by 10 squares from 1 – 3, and the answer to number 6.

   a. 30% of 500 people

b. 25% of 500 people

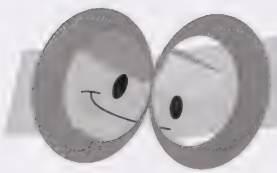
c. 75% of 500

Recording Instructions:

Start your recording by saying: My name is _____.

This is Math 6, Unit 4, Lesson 5, Exploration 1.

Be sure to hand in your recording with your Workbook.

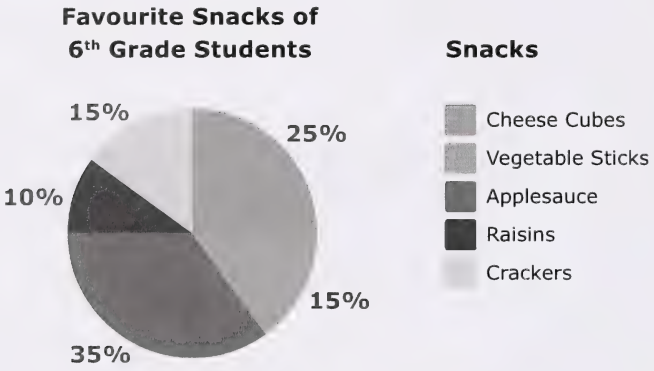


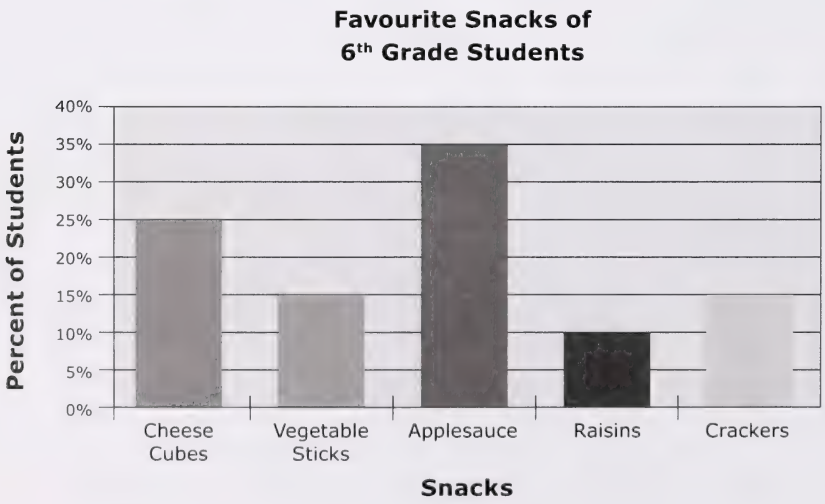
Let's Explore

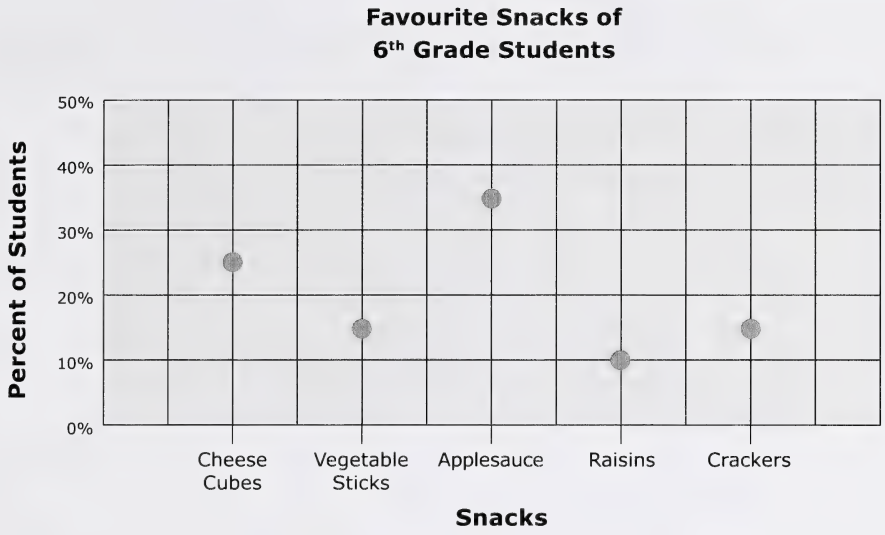
Exploration 2: Graphing Data

Materials: Unit 4, Lesson 5, Exploration 2 page in your Workbook, Pencil

For 1 – 4: You have just surveyed your classmates. Each graph displays the same collected data.







1. What percentage of students prefer each snack?

2. What is the favourite snack based on this data?

3. Which of the three graphs would you use to display your data?

For 4 – 5: Either record an oral response or write one in the space provided. If recording, follow the recording instructions found at the end of this Exploration.

4. Explain why you chose that graph.

5. Reflect: What are some things you should think about when choosing the type of graph to display a set of data?

Recording Instructions:

Start your recording by saying: My name is _____.

This is Math 6, Unit 4, Lesson 5, Exploration 2.

Be sure to hand in your recording with your Workbook.

Let's Practice

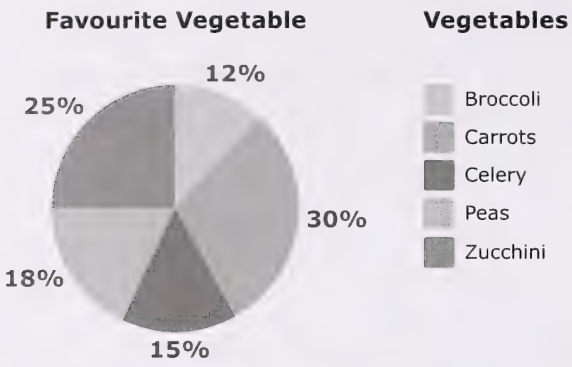
For 1 – 10: Find the value of each percent statement. Use a calculator.

1. 10% of 250 _____
2. 25% of 400 _____
3. 65% of 40 _____
4. 55% of 320 _____
5. 40% of 80 _____
6. 3% of 200 _____
7. 60% of 540 _____
8. 75% of 48 _____
9. 24% of 225 _____
10. 90% of 60 _____

11. Mrs. Grey teaches sixth grade math. She needs to compare the class average of each test given during this term. What type of graph should she use?

12. Daksha gave a survey about colour preference to his classmates. Each student was allowed to choose one colour that was their favourite. What type of graph should Daksha use to display the results?

13. Lian gave a survey about favourite vegetables to her classmates. She graphed her results.



a. What angle measure did she use to make the section for carrots?

b. What angle measure did she use to make the section for zucchini?

c. What angle measure did she use to make the section for celery?

14. What percent of a metre is a centimetre? Explain your answer.

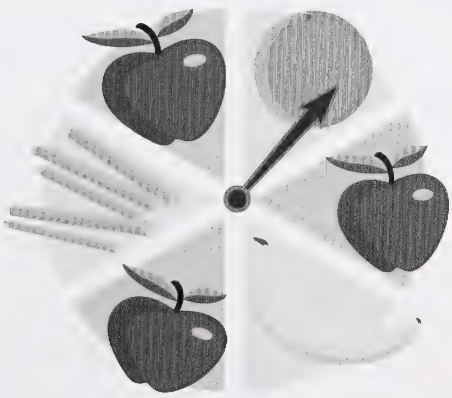
15. Reflect: What method for finding the percent of a number do you prefer and why?

Mixed Review

For 1 – 2: Determine if the outcome is certain, possible, or impossible.

1. Spinning a banana

2. Spinning a carrot

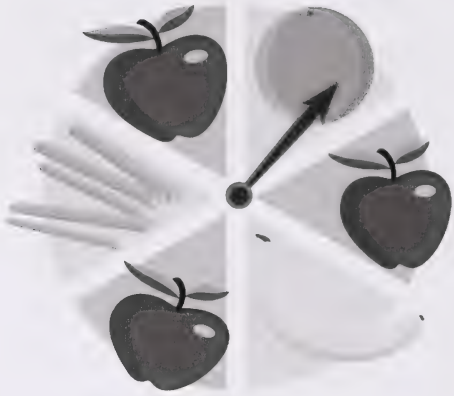


For 3 – 5: Determine if the outcome described is more likely, less likely or equally likely.

3. Spinning celery

4. Spinning an apple

5. Spinning a fruit



Lesson 6

Possible Outcomes

Let's Explore

Exploration 1: Rolling Sums

Materials: A Pair of Six-Sided Dice, Pencil

1. Toss the dice. Record the sum of the two dice in the table provided. Repeat until all parts of the table are filled.

2. List the different outcomes.

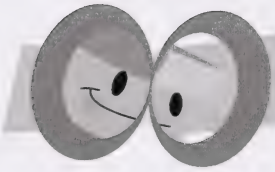
3. What was the outcome that occurred the most?

4. What was the outcome that occurred the least?

5. Were there any possible outcomes that did not occur?

6. If you were to limit the number of dice that you rolled to one six-sided die, what are the possible outcomes?

7. If you roll three dice and find the sum, what are the possible outcomes?



Let's Explore

Exploration 2: Patterns in Outcomes

Materials: Pencil

For 1 – 6: List all the outcomes for each experiment. Choosing from Bag 1 and then from Bag 2:

T = Turquoise, R = Red, B = Blue, O = Orange, G = Green

1.

Lesson 6: Possible Outcomes

2.

3.

4.

5.

6.

7. Use your answers from 1 – 6 to complete the table.

	Number in Bag 1	Number in Bag 2	Total Number of Outcomes
1.			
2.			
3.			
4.			
5.			
6.			

8. What is the relationship between the number of outcomes from each bag and the number of total outcomes?

9. If there are 12 marbles in Bag 1 and 8 marbles in Bag 2, how many possible outcomes are there?

Let's Practice

For 1 – 3: List all possible outcomes for the experiment.

1. Spinning the spinner

2. Rolling an 8-sided die

3. Rolling a pair of six-sided dice and finding the sum

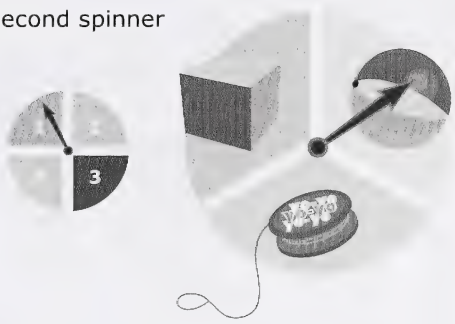
For 4 – 5: Make a tree diagram to list all possible outcomes.

4. Tossing a quarter and then spinning the spinner

5. Spinning the spinner and then tossing a coin

For 6 – 12: List all possible outcomes.

6. Spinning the first spinner and then the second spinner



7. Drawing a marble from the bag and then rolling the die

R = Red, B = Blue, O = Orange, G = Green

8. Tossing a coin and then spinning the spinner

9. Tossing a quarter and then tossing a dime

10. Tossing a quarter, drawing a marble, and then drawing a card

R = Red, B = Blue, O = Orange, G = Green

11. Tossing a quarter, then a dime, and then a penny

12. Spinning the spinner, tossing a coin, and drawing a card

For 13 – 18: Use the Fundamental Counting Principle to find the number of possible outcomes when you combine one item from each category.

13. 3 pairs of pants, 4 shirts

14. 7 brands of paint, 24 colours

15. 6 fruits, 5 vegetables

16. 8 movies, 4 CDs

17. 3 soups, 5 sandwiches, 4 desserts

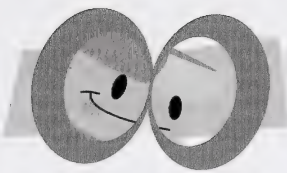
18. 6 pair of pants, 2 pair of shoes, 8 shirts

For 1 – 5: Complete the chart. Round answers to the nearest hundredth if necessary.

	Fraction	Decimal	Percent
1.	$\frac{3}{4}$		
2.		0.56	
3.			45%
4.		0.25	
5.	$\frac{4}{7}$		

Lesson 7

Theoretical Probability



Let's Explore

Exploration 1: Theoretical Probability

Materials: Pencil, Items such as a Pair of Six-Sided Dice, Spinners, Multi-Coloured Objects, Box or Bag, Coins,

1. Create your own experiments that have the following probability:
   a. An experiment with an event that has a probability of $\frac{1}{12}$.
   b. An experiment with an event that has a probability of $\frac{5}{18}$.
   c. An experiment with an event that has a probability of $\frac{1}{4}$.
   d. An experiment with an event that has a probability of $\frac{7}{24}$.

For 2: Either record oral descriptions or write them in the space provided. If recording, follow the recording instructions found at the end of this Exploration.

2. Describe each experiment and the event that you created, in words.
   a.

b.

c.

d.

Recording Instructions:

Start your recording by saying: My name is _____.

This is Math 6, Unit 4, Lesson 7, Exploration 1.

Be sure to hand in your recording with your Workbook.

Let's Practice

1. Lian and Zach are finding the probability of rolling a 6 on a six-sided die.

Lian	Zach
Favourable: 6	Favourable: 6
Unfavourable: 1, 2, 3, 4, 5	Possible: 1, 2, 3, 4, 5, 6
$P(6) = \frac{1}{5}$	$P(6) = \frac{1}{6}$

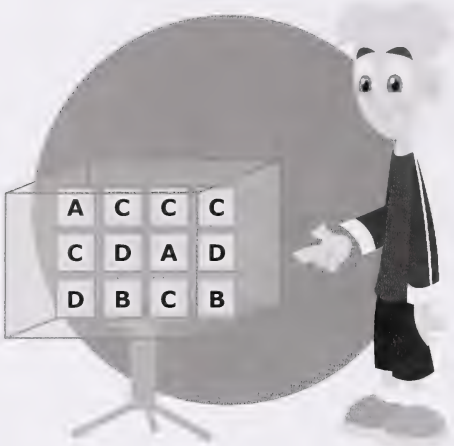
Which student has made an error? How can you tell?

2. Daksha says that the probability of picking a blue marble from the bag is 1.

R = Red, B = Blue, G = Green

Explain his answer.

For 3 – 8: Zach is going to pull a ticket from the box shown. Find each probability as a fraction, decimal, and a percent. Round decimals to the nearest hundredth.



3. P(A)

4. P(C)

5. P(B)

6. P(A or C)

7. P(D)

8. P(B or D)

For 9 – 13: The Chang family plans to have three children. What is the probability of each event?

9. Make a tree diagram to determine the number of possible outcomes of the genders of the children.

10. Find P(B, B, B).

11. Find P(G, B, G).

12. Find P(two girls).

13. Find P(B, G, G).

For 14 – 21: The table shows all possible outcomes when you roll two six-sided dice, one at a time. Use the outcomes listed to find the probabilities.

First Roll \ Second Roll	1	2	3	4	5	6
1	(1, 1)	(1, 2)	(1, 3)	(1, 4)	(1, 5)	(1, 6)
2	(2, 1)	(2, 2)	(2, 3)	(2, 4)	(2, 5)	(2, 6)
3	(3, 1)	(3, 2)	(3, 3)	(3, 4)	(3, 5)	(3, 6)
4	(4, 1)	(4, 2)	(4, 3)	(4, 4)	(4, 5)	(4, 6)
5	(5, 1)	(5, 2)	(5, 3)	(5, 4)	(5, 5)	(5, 6)
6	(6, 1)	(6, 2)	(6, 3)	(6, 4)	(6, 5)	(6, 6)

14. P(two even numbers)

15. P(4, 4)

16. P(same number)

17. P(6 last)

18. P(1, 2, or 3 first)

19. P(a 2 and a 4 in either order)

20. P(a prime number on the first roll)

21. P(two composite numbers)

22. The probability of spinning a 7 on the spinner with all 7s and 8s is 60%. What number is missing from the spinner?

23. What is an event that has a probability of $\frac{2}{10}$?

For 1 – 5: Write a variable equation for the sentence given.

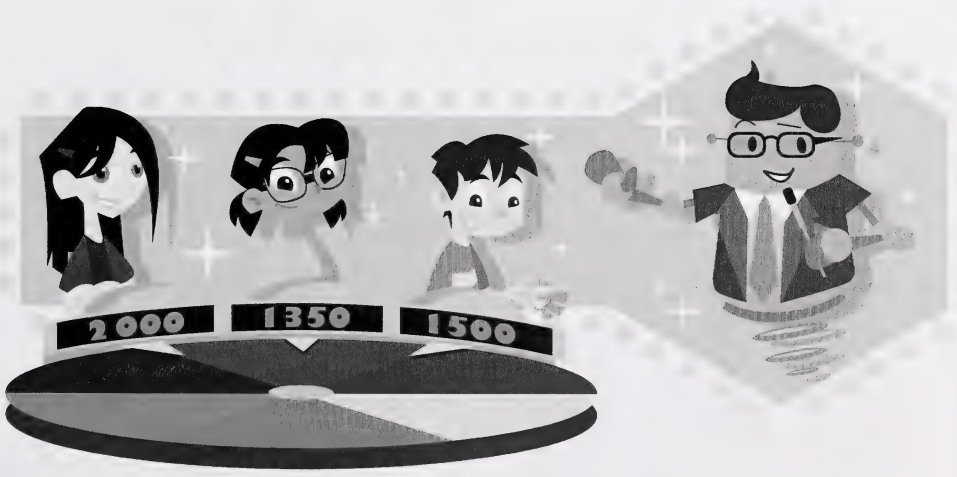
1. Seven more than some number is twelve.

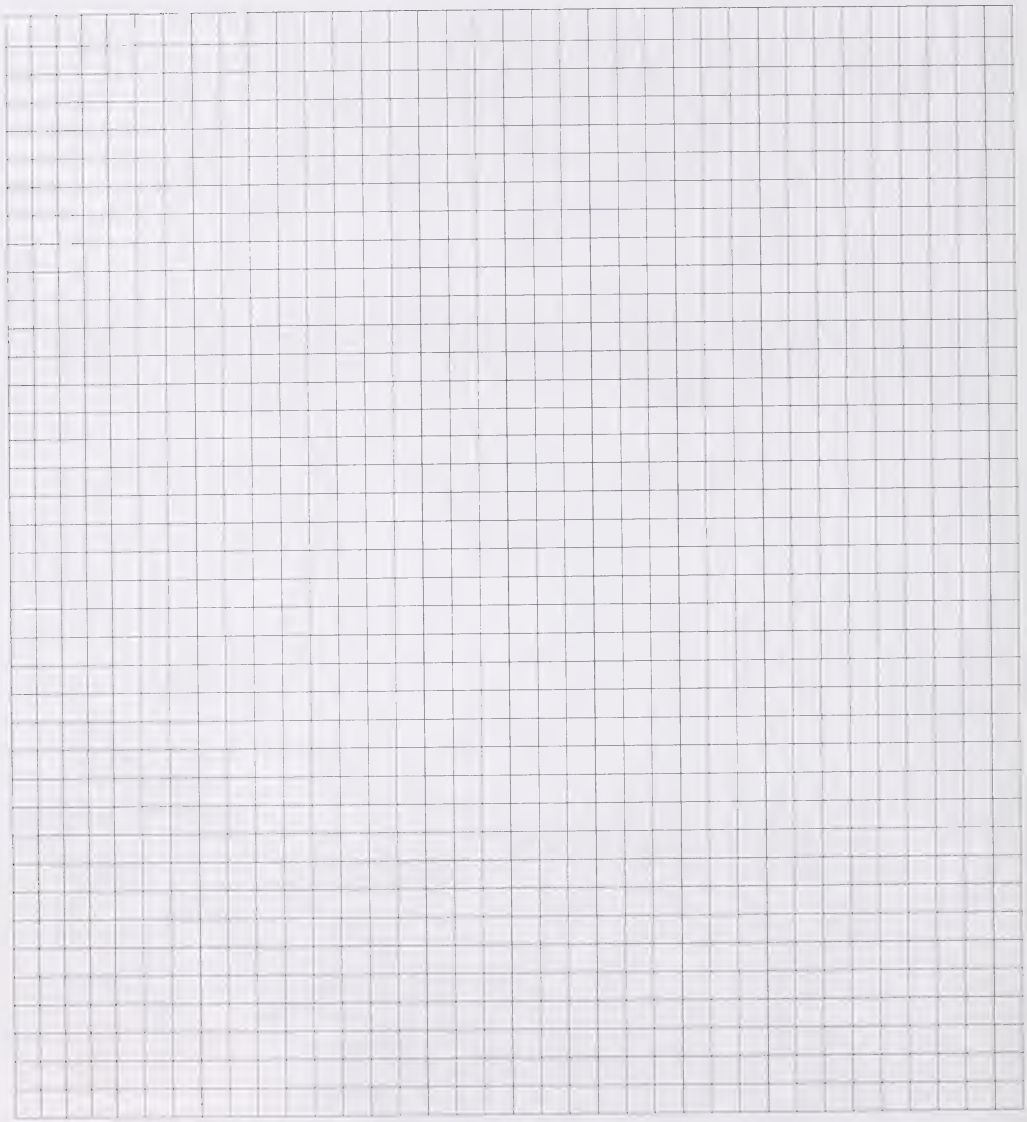
2. Three less than a number equals seventeen.

3. Eighteen equals three less than some number.

4. A number divided by twelve is ten.

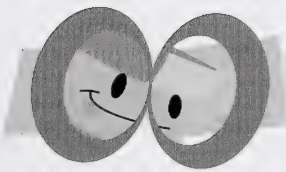
5. The product of a number and six is forty-two.





Lesson 8

Experimental Probability



Let's Explore

Exploration 1: Throwing a Six-Sided Die

Materials: Unit 4, Lesson 8, Exploration 1 page in your Workbook, Internet, Pencil

1. Go to the website: http://www.learnalberta.ca/content/memg/index.html
2. On the left, select **Grades 4 to 6**. If **Grades 4 to 6** is not there, click **Home** on the top left hand-side of the Mathematics Glossary page. Now click **Grades 4 to 6**.
3. Scroll down and select **Experimental Probability**.
4. This activity will help you explore the difference between theoretical and experimental probability. Use the first Demonstration Applet (Throwing the Six-Sided Die) and **Repeat Throwing the Die** until you have 25 throws.
5. Complete the following table with the results of your experiment. Round your decimals to the hundredths place.

Numeral	Number of Times the Numeral Occurs	Experimental Probabilities		Theoretical Probabilities	
		Fraction	Decimal	Fraction	Decimal
1					
2					
3					
4					
5					
6					
TOTAL					

6. Observe the decimal equivalents of the theoretical probability and the experimental probability for 25 throws. What is the difference between P(4) for each?

7. Repeat 25 more throws until you have a total of 50 throws. Complete the following table with the new results of your experiment. Round your decimals to the hundredths place.

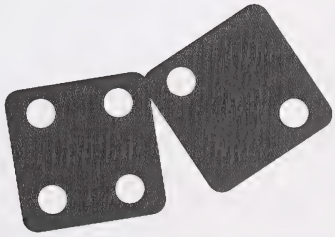
Numeral	Number of Times the Numeral Occurs	Experimental Probabilities		Theoretical Probabilities	
		Fraction	Decimal	Fraction	Decimal
1					
2					
3					
4					
5					
6					
TOTAL					

8. Observe the decimal equivalents of the theoretical probability and the experimental probability for 50 throws. What is the difference between P(4) for each?

9. Repeat 25 more throws until you have a total of 75 throws. Complete the following table with the new results of your experiment. Round your decimals to the hundredths place.

Numeral	Number of Times the Numeral Occurs	Experimental Probabilities		Theoretical Probabilities	
		Fraction	Decimal	Fraction	Decimal
1					
2					
3					
4					
5					
6					
TOTAL					

10. Observe the decimal equivalents of the theoretical probability and the experimental probability for 75 throws. What is the difference between P(4) for each?



11. Repeat 25 more throws until you have a total of 100 throws. Complete the following table with the new results of your experiment. Round your decimals to the hundredths place.

Numeral	Number of Times the Numeral Occurs	Experimental Probabilities		Theoretical Probabilities	
		Fraction	Decimal	Fraction	Decimal
1					
2					
3					
4					
5					
6					
TOTAL					

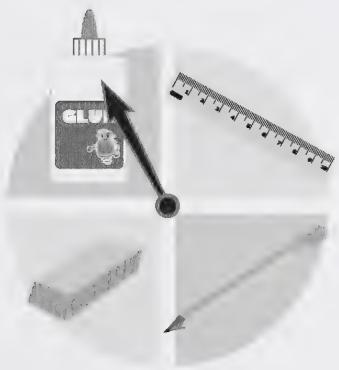
12. Observe the decimal equivalents of the theoretical probability and the experimental probability for 100 throws. What is the difference between P(4) for each?

13. How does the difference in theoretical and experimental probability for P(4) change as the number of throws increases?

Let's Practice

1. Compare the experimental probability of rolling a 6 on a six-sided die and the theoretical probability of rolling a 6 on a six-sided die.

For 2 – 9: Nina spins the spinner. Her results are shown. Record each probability as a fraction, decimal, and percent. Round decimal answers to nearest hundredths if necessary.



Nina's Results

P	E	E	E	R	G
P	R	R	G	P	E
R	G	G	E	P	R

2. What is the theoretical probability of spinning Ruler?

3. What is the experimental probability of spinning Ruler?

4. What is the theoretical probability of spinning Glue?

5. What is the experimental probability of spinning Glue?

6. What is the theoretical probability of spinning Eraser?

7. What is the experimental probability of spinning Eraser?

8. What is the theoretical probability of spinning Pencil?

9. What is the experimental probability of spinning Pencil?

For 10 – 12: Use a coin. Conduct an experiment by tossing the coin 10 times.

10. Record the results of tossing your coin 10 times.

11. What is the experimental probability of tossing a Head as a decimal?

12. What is the experimental probability of tossing a Tail as a decimal?

13. Reflect: How are the experimental probabilities of each event in an experiment always related? Examine the decimal forms.

For 1 – 5: Solve the equation. Check the solution.

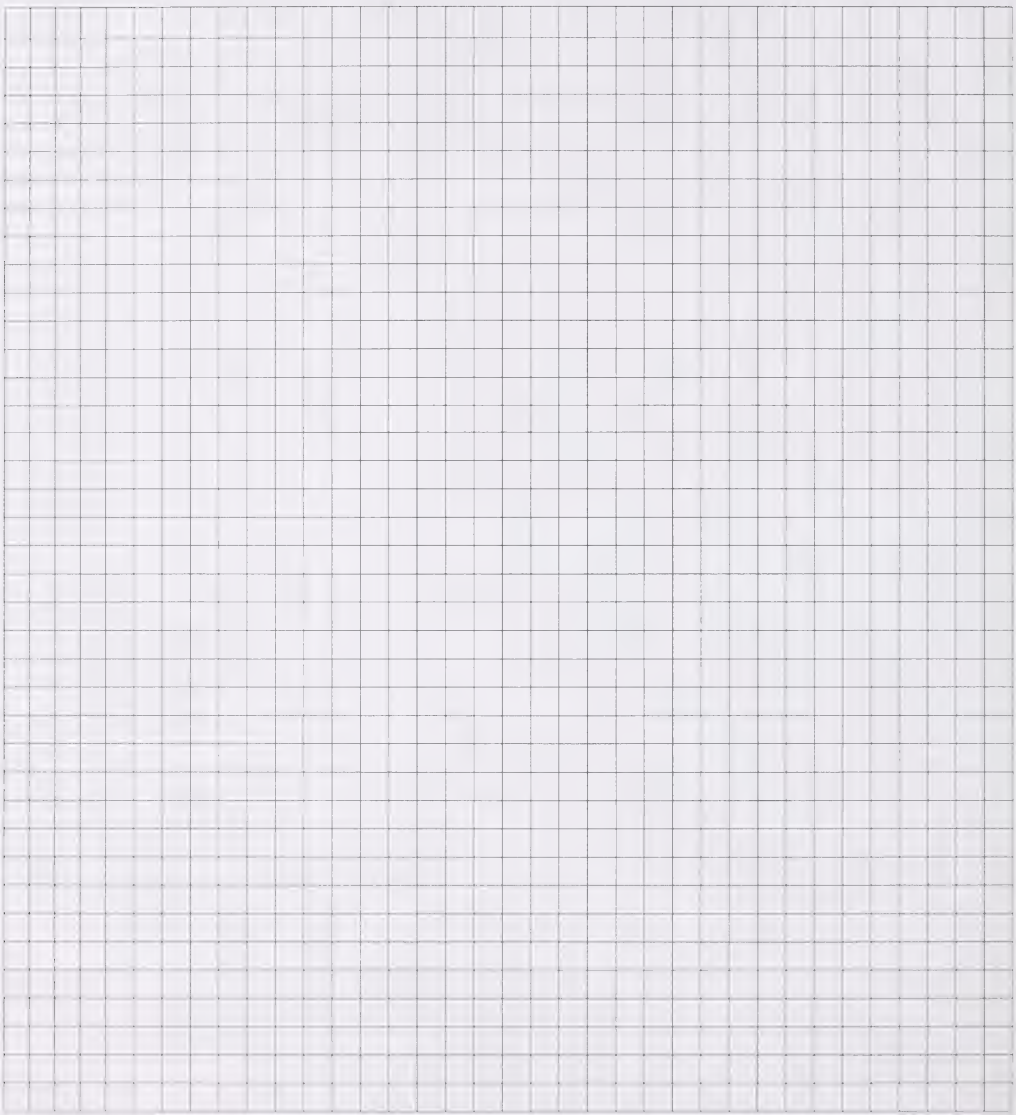
1. $y + 8 = 12$

2. $u - 5 = 19$

3. $7 + m = 24$

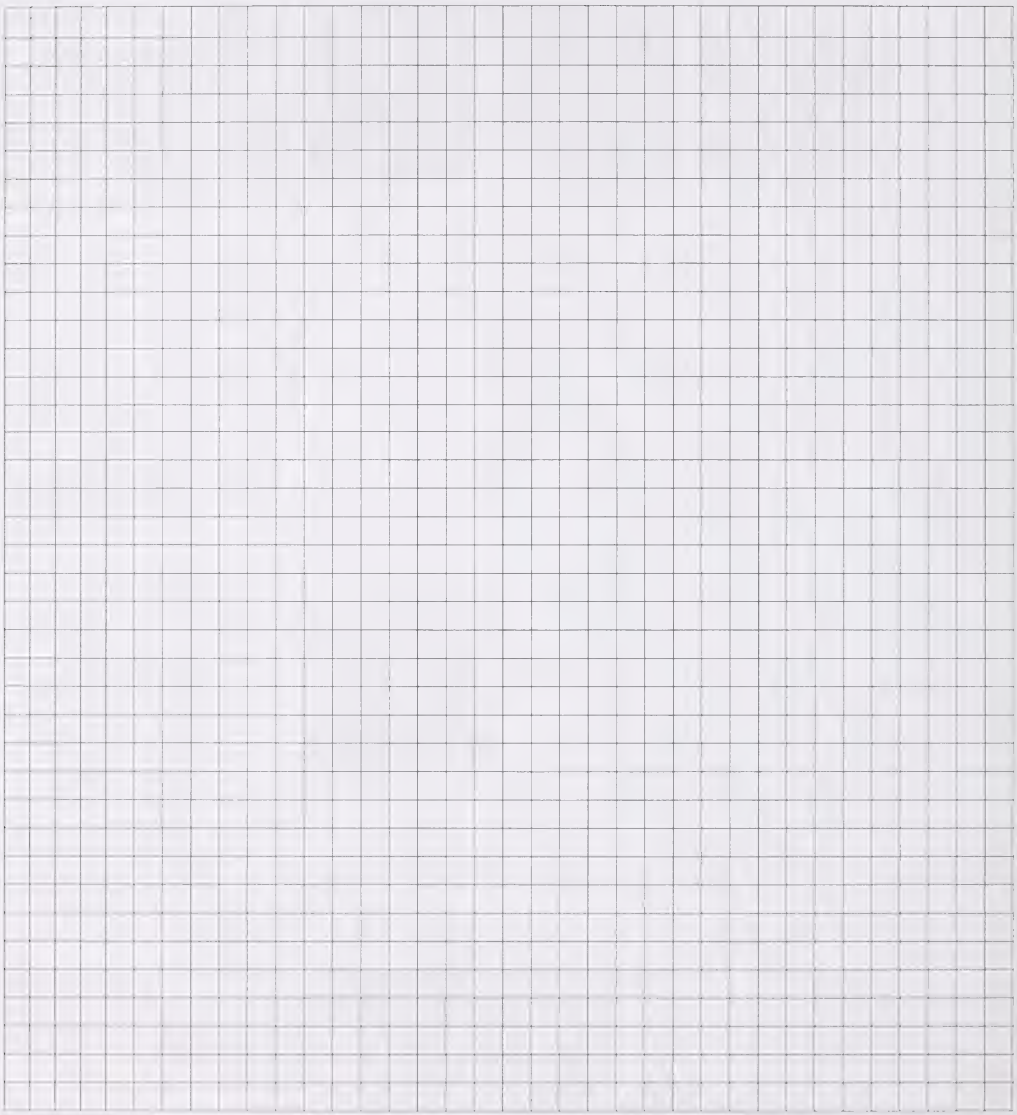
4. $\frac{a}{9} = 4$

5. $\frac{b}{3} = 5$



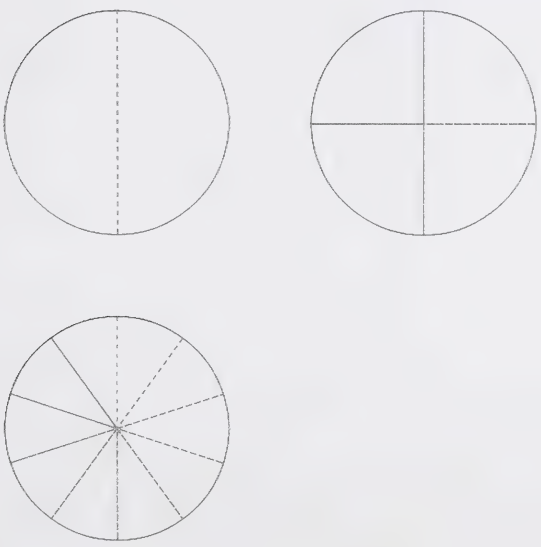
Bingo Card

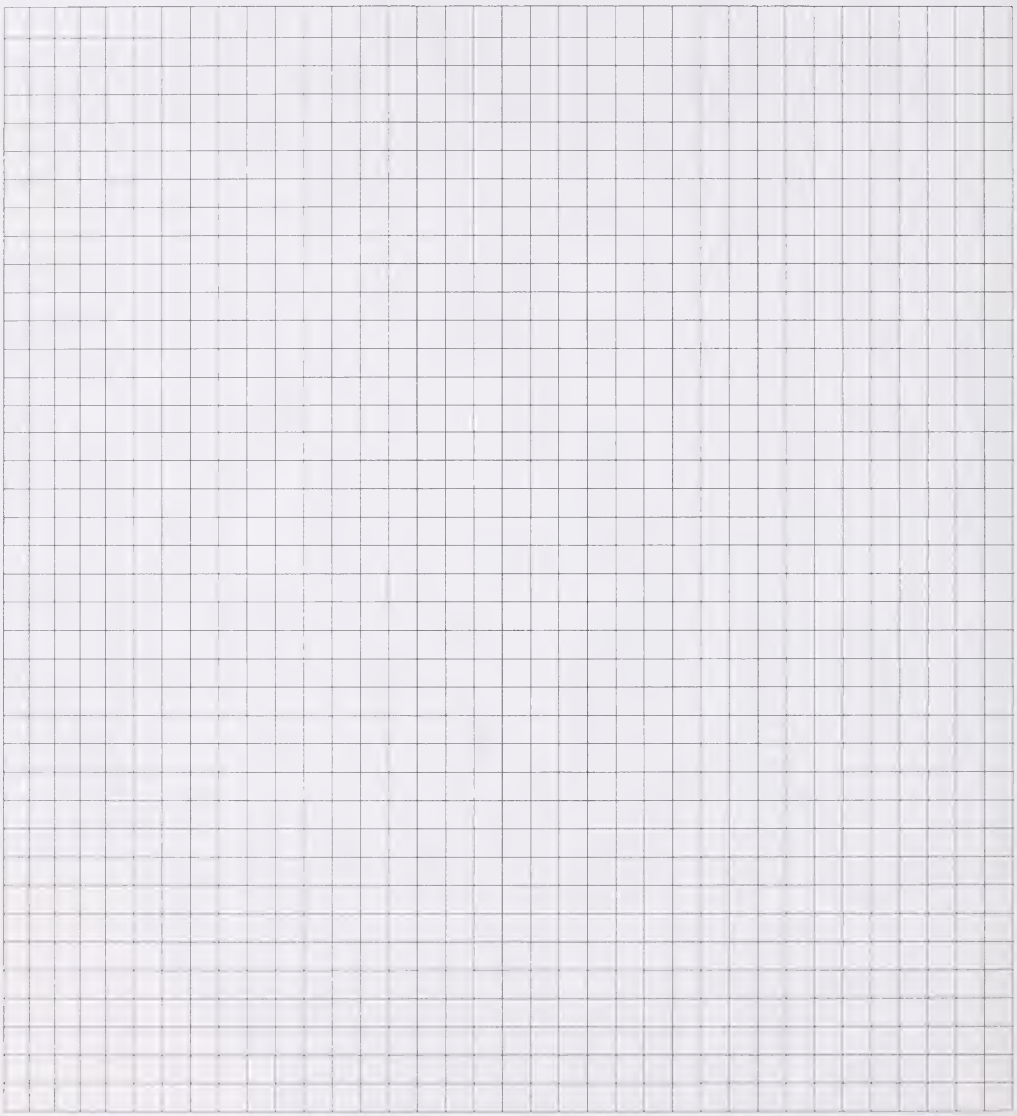
B	I	N	G	O



Percent Strips

Percent Circles





Sources - Workbook, Unit 4

Lesson 1
Page 4-7: Questions 9 – 14,
http://www.nhl.com/cup/champs.html

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